



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,641	11/09/2005	Elena Bencini	272909US0XPCT	3733
22850	7590	06/18/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
SINGH, PREM C				
ART UNIT		PAPER NUMBER		
1797				
NOTIFICATION DATE		DELIVERY MODE		
06/18/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary

Application No.

10/538,641

Applicant(s)

BENCINI ET AL.

Examiner

PREM C. SINGH

Art Unit

1797

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2008.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8, 9, 11, 12, 14-29, 32-37, 39 and 40 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-6, 8, 9, 11, 12, 14-29, 32-37, 39 and 40 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 10 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-849)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Amendment to specification is noted.
2. Amendment to claims 1, 8, 9, 11, 12, 14, 18 and 27 and cancellation of claims 7, 10, 13, 30, 31 and 38 is noted.
3. Due to amendment to claims, new rejection follows.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 1797

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-6, 8, 9, 11, 12, 14-29, 32-37, 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Girotti et al (EP 0 847 802 A1).

8. With respect to claim 1, Girotti discloses a catalyst composition comprising a crystalline zeolite and an inorganic ligand selected from silica, alumina or natural clays or combinations of these (See page 4, lines 1-22). Girotti further discloses that extra zeolite porosity obtained by adding the mesoporosity and macroporosity fractions present in the catalyst composition itself, which is such that a fraction of at least 25% is composed of pores with a radius higher than 100 Å, and is characterized by a total volume of extra zeolitic pores greater than or equal to 0.80 ml/g (See page 4, lines 8-10). Girotti also discloses using alumina in the bohemite form (See page 8, lines 30-31, 46-47).

Although Girotti uses beta zeolite due to "best results in terms of activity in the alkylation of aromatics" (See page 3, lines 18-19), however, Girotti also discloses that zeolite Y has been widely used as alkylation/transalkylation catalyst by different inventors (See page 2, lines 18-24; page 3, lines 2-4, 19-20). Girotti further discloses, "It can generally be said that zeolites are active in the alkylation of aromatics with olefins,

but have different kinds of behavior with respect to the selectivity" (Page 2, lines 27-28). Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify Girotti invention and use zeolite Y because all disclosed zeolites are active in the alkylation as per Girotti, and because zeolite Y has been shown to be effective for alkylation/transalkylation in the prior art. See *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982).

Girotti does not specifically disclose zeolite openings consisting of 12 tetrahedra and γ -alumina binder.

It is known to those skilled in the art that beta-zeolite used by Girotti (See page 4, lines 34-35) should have openings consisting of 12 tetrahedra.

It is also known to those skilled in the art that bohemite converts to gamma alumina upon heating. Thus, it would have been obvious to one skilled in the art at the time the invention was made to use γ -alumina as a ligand (binder) because γ -alumina is obtained when bohemite is calcined.

9. With respect to claim 2, Girotti discloses crushing strength along the diameter as 7 to 19 Kg/cm (See page 12, Table 1, last line).

10. With respect to claims 3-6, Girotti invention does not specifically disclose apparent density and the particle diameter of the catalyst composition. However the invention does disclose use of the catalyst composition in the form of tablets, bars, cylinders and pellets (See page 5, lines 39-41). Apparent density can easily be

Art Unit: 1797

determined by calculating the mass of the catalyst and the volume occupied by the catalyst. Thus, one skilled in the art will use an apparent density in a range, including as claimed, for proper catalytic process. It would have been obvious to one skilled in the art at the time the invention was made to specify the particle diameter to determine the amount of the catalyst required for the catalytic process.

11. With respect to claim 8, Girotti discloses that zeolite is in acidic form (See page 4, lines 39-40).

12. With respect to claim 9, Girotti discloses ligand (binder) content (w/w%) to be 50, i.e., zeolite to binder (ligand) ratio is 1:1 (See page 12, Table 1).

13. With respect to claims 11 and 12, Girotti invention does not specifically disclose $\text{SiO}_2/\text{Al}_2\text{O}_3$ molar ratio for zeolite Y.

Girotti invention is using zeolite beta with known composition (See page 4, lines 33-35) where $\text{SiO}_2/\text{Al}_2\text{O}_3$ can easily be determined. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify Girotti invention and use zeolite Y and specify $\text{SiO}_2/\text{Al}_2\text{O}_3$ molar ratio for proper characterization of the catalyst.

14. With respect to claims 14 and 15, Girotti invention discloses a process for preparing the catalyst of claim 1 as follows:

(a) Preparing a homogeneous mixture comprising beta zeolite in acidic form and an inorganic ligand (bohemite) (See page 5, lines 8-11; page 8, lines 31-32);

(b) Adding a mixture of acid and demineralized water;

(c) Extrusion;

(d) Drying;

(e) Calcination

(See page 15, Figure 1; Example 4, page 8).

Girotti is using zeolite beta, but it would have been obvious to use zeolite Y, as discussed under claim 1.

Girotti does not specifically disclose the details of mechanical mixing in step (a), but does disclose mixing by stirring until complete dissolution (See page 7, lines 35-37). Thus, it would have been obvious to one skilled in the art to use a mixer running at a speed in a range, including as claimed, for an effective mixing of components.

Girotti does not specifically disclose the acid strength, but discloses the ratio of acid (peptizing agent) to ligand (binder) to be from 0.028 to 0.121 (w/w). Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify Girotti invention and specify the ratio of acid to the total weight of mixture in step (a).

Girotti discloses aging and drying at a temperature ranging from room temperature to 200°C (See page 13, lines 37-38).

Girotti discloses calcination at a temperature ranging from 400-600°C (See page 13, lines 35-36).

Although Girotti does not specifically disclose drying time and calcinations time, it would have been obvious to one skilled in the art at the time the invention was made to use an optimum time in a range, including as claimed, for proper drying and calcination, respectively.

15. With respect to claims 16 and 17, Girotti invention discloses using acetic acid (See page 12, Table 1).

16. With respect to claim 18, Girotti invention discloses a process for transalkylation of aromatic hydrocarbons comprising putting an aromatic hydrocarbon in contact with a polyalkylated aromatic hydrocarbon in the presence of the catalyst of claims 1 to 3, operating so that the reaction takes place at least partially in liquid phase (See claim 22, page 14, lines 14-17).

17. With respect to claim 19, Girotti discloses that the zeolite is selected from zeolite Y, beta, and ZSM-12 (See page 3, lines 18-20) and the zeolite is in acidic form (See page 4, lines 39-40).

18. With respect to claim 20, Girotti invention does not specifically disclose $\text{SiO}_2/\text{Al}_2\text{O}_3$ molar ratio for zeolite Y.

Girotti invention is using zeolite beta (See page 4, lines 33-35) where $\text{SiO}_2/\text{Al}_2\text{O}_3$ can easily be determined. Thus, it would have been obvious to one skilled in the art at

Art Unit: 1797

the time the invention was made to modify Girotti invention and use zeolite Y and specify $\text{SiO}_2/\text{Al}_2\text{O}_3$ molar ratio for proper characterization of the catalyst.

19. With respect to claim 21, Girotti invention discloses temperature ranging from 150 to 300°C, pressure ranging from 20 to 45 atm, and a WHSV ranging from 0.1 to 10 h^{-1} (See claim 24, page 14, lines 22-23).

20. With respect to claims 22 and 23, Girotti invention discloses molar ratio between aromatic hydrocarbon and polyalkylaromatic hydrocarbon is between 1 and 30 (See claim 25, page 14, lines 25-26).

21. With respect to claim 24, Girotti invention discloses that the aromatic hydrocarbon is benzene (See claim 26, page 14, line 28).

22. With respect to claim 25, Girotti invention discloses that polyalkylated aromatic hydrocarbon is selected from diethyl benzene and diisopropyl benzene (See claim 27, page 14, lines 30-31).

23. With respect to claim 26, Girotti invention discloses that the aromatic hydrocarbon is preferably benzene. The polyalkylated aromatic hydrocarbon is preferably selected from diethyl benzene and possibly triethyl benzene (See page 6, lines 45-48).

Art Unit: 1797

24. With respect to claim 27, Girotti discloses a process for preparing mono-alkylated aromatic hydrocarbons comprising: (See page 7, lines 25-31).

1) contacting an aromatic hydrocarbon and a C₂-C₄ olefin with each other, in the presence of the, catalyst of the present invention (zeolite beta), under such alkylation conditions that the reaction takes place at least partially in liquid phase; (See page 7, lines 25-31).

2) separating the product obtained into a fraction containing an aromatic hydrocarbon, a fraction containing a monoalkylated aromatic hydrocarbon and a fraction containing polyalkylated aromatic hydrocarbons; (See page 7, lines 25-31).

3) contacting the fraction containing the polyalkylated aromatic hydrocarbons with an aromatic hydrocarbon, in the presence of the catalyst of the present invention, under such transalkylation conditions that the reaction takes place at least partially in liquid phase. (See page 7, lines 25-31).

25. With respect to claim 28, Girotti discloses that the zeolite is selected from zeolite Y, beta, and ZSM-12 (See page 3, lines 18-20) and that zeolite is in acidic form (See page 4, lines 39-40).

26. With respect to claim 29, Girotti invention does not specifically disclose SiO₂/Al₂O₃ molar ratio for zeolite Y.

Girotti invention is using zeolite beta (See page 4, lines 33-35) where SiO₂/Al₂O₃ can easily be determined. Thus, it would have been obvious to one skilled in the art at

Art Unit: 1797

the time the invention was made to modify Girotti invention and use zeolite Y and specify $\text{SiO}_2/\text{Al}_2\text{O}_3$ molar ratio for proper characterization of the catalyst.

27. With respect to claims 32-34, Girotti invention discloses that olefin in step (a) is ethylene and propylene and aromatic hydrocarbon is benzene (See page 14, lines 1-3; page 13, line 57).

28. With respect to claim 35, Girotti invention discloses that step (a) uses zeolite beta (See page 3, lines 18-20), olefin is ethylene (See page 14, line 3), and aromatic hydrocarbon is benzene (See page 13, line 57).

29. With respect to claim 36, Girotti invention discloses that the polyalkylated aromatic hydrocarbon is preferably selected from diethylbenzene (See page 6, lines 46-47).

30. Claim 37 has all the limitations of claim 27 and discussed before. Additionally, the claim requires in step (a), benzene as hydrocarbon and ethylene as olefin; in step (b) the claim requires fractions containing benzene, ethyl benzene, diethyl benzene, and heavy hydrocarbons with boiling point higher than 260°C ; and in step (c) the third fraction putting in contact with benzene. Girotti discloses steps (a) through (c) on page 6 (lines 45-50). Example 9 (See page 9, lines 44-58; page 10, lines 1-3) shows details of

step (a) and (b) and Example 13 (See page 10, lines 54-56; page 11, lines 1-19) shows details of Step (c).

Although Girotti invention does not specifically disclose heavy hydrocarbons with boiling point higher than 260°C, the invention does disclose the analysis of alkylated liquid product by gas chromatography (See page 9, line 54). Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify Girotti invention, and specify the boiling point of heavy hydrocarbons.

31. With respect to claim 39, Girotti does not disclose using flux oil in step (c).

It is known to those skilled in the art that flux oil is used to reduce the viscosity of heavy petroleum fractions. Since the feed to step (c) is a mixture of high boiling products from alkylation process, it would have been obvious to one skilled in the art at the time the invention was made to modify Girotti invention, and use flux oil to reduce the viscosity of the feed and conduct the process of alkylation/transalkylation efficiently.

32. With respect to claim 40, Girotti invention discloses using gas chromatography to analyze alkylated products comprising diethyl-, triethyl-, diisopropyl-, and triisopropyl benzene (See page 6, lines 45-50). The invention also discloses 19.8 wt% heavy products (See page 11, lines 1-14). Girotti's silence on butyl benzene in the product may read zero or negligible amount. Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify Girotti invention, and specify the

butyl benzene content which might be negligible. It is to be noted that zero butyl benzene in Girotti invention reads on the Applicant's claim of not higher than 2%.

Response to Arguments

33. Applicant's arguments filed 03/19/2008 have been fully considered but they are not persuasive.

34. The Applicant argues,

"As is evident from the above-quoted text from Girotti, the Office's assertion that the Girotti composition may be made from zeolite Y and ZSM-12 is not correct. In fact, the above-quoted text of Girotti makes it clear that EP432.814 discloses a different prior art composition, that may include any of ZSM-5, Y and ZSM-12, not the composition of Girotti". "Girotti does not disclose or suggest the catalytic composition of present Claim 1 and actually teaches away from the presently claimed invention by disclosing a composition that excludes zeolite Y".

The Applicant's argument is not persuasive because Girotti discloses that zeolite Y has been widely used as alkylation/transalkylation catalyst by different inventors (See page 2, lines 18-24; page 3, lines 2-4, 19-20). Girotti further discloses, "It can generally be said that zeolites are active in the alkylation of aromatics with olefins, but have different kinds of behavior with respect to the selectivity" (Page 2, lines 27-28). Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify Girotti invention and use zeolite Y because all disclosed zeolites are active in the

alkylation as per Girotti, and because zeolite Y has been shown to be effective for alkylation/transalkylation in the prior art. See *In re Fout*, 675 F.2d 297, 213 USPQ 532 (CCPA 1982).

35. The Applicant argues,

"Not only does Girotti not disclose or suggest the presently claimed invention, Girotti teaches away from the presently claimed invention for other reasons. For example, Girotti discloses materials having porosity characteristics wherein pores having a large diameter are not favored. For example, on page 4, lines 25-26 Girotti discloses: The porosity in the fraction with a radius which is greater than 450 Å, should preferably be less than 0.25 cc/g when the diameter of the catalytic particles is less than or equal to 0.8 mm. In contrast, the presently claimed invention is drawn to a catalytic composition having porosity characteristics favoring a large pore radius (i.e., "wherein at least 30% of said volume consists of pores with a diameter greater than 100 nanometers" - see Claim 1). As noted above, Girotti discloses that large pore radius (e.g., 450Å is not favored. Therefore, Girotti further teaches away from the presently claimed invention".

The Applicant's argument is not persuasive because Girotti discloses, "Porosity is such that a fraction of at least 25% , preferably at least 35%, is composed of pores with a radius higher than 100 Å" (Page 3, lines 46-49).

36. The Applicant argues,

"Moreover, Girotti makes it clear that the mechanical characteristics of catalyst compositions are compromised when such compositions have a porosity properties characterized by large pore diameter. For example, in the paragraph bridging pages 4 and 5 of Girotti it is disclosed that mechanical characteristics are drastically deteriorated when the EPV (extra zeolite pore volume) is increased. Thus, as already noted above, Girotti teaches away from the presently claimed invention which requires high porosity, e.g., at least 30% of the pore volume consisting of pores with a diameter of greater than 100 nanometers".

The Applicant's argument is not persuasive because Girotti discloses, "We have found that by selecting for the preparation of the catalyst, a suitable form for the zeolitic component, it is possible to increase the EPV (extrazeolite pore volume) to the values claimed maintaining PSD (pore size distribution) values which are such that the extrazeolite porosity is composed of a fraction of at least 25% with pores having a radius higher than 100 Å and the resulting catalyst has good mechanical characteristics" (Page 5, lines 4-7).

37. The Applicant argues that Girotti's catalyst A1 with extrazeolite volume of 0.81 cc/g has crushing strength of 13 kg/cm as against the Applicant's catalyst of Example 1 having similar extrazeolite volume having a crushing strength of 21 kg/cm.

The Applicant's argument is not persuasive because Girotti's catalyst A1 has extrazeoliteic pore volume of 0.81 cc/g, fraction of pores with radius more than 100 Å of

more than 35%, has pore radius between 15 Å and 75000 Å, and surface area of 482 m²/g (See Example 4, page 8 and Table 1, page 12). The Applicant's catalyst has total extra-zeolitic porosity equal to 0.84 cc/g with a fraction of said extra-zeolitic porosity having a pore diameter greater than 100 nanometers (radius = 500 Å) equal to 34.5% (0.29 cc/g/0.84 cc/g * 100). The crushing strength measured according to the method ASTM D6175-98 equal to 2.1 kg/mm. The apparent density is equal to 0.46 g/cc (Specifications, page 23). It is to be noted that the only comparative parameter to Girotti's and the Applicant's catalyst is the extrazeolitic porosity and the fraction of pores with radius more than 100 Å. Additionally, Girotti's catalyst has pore radius between 15 Å and 75000 Å and surface area of 482 m²/g, not provided by the Applicant. Thus, a proper comparison of the two catalysts is not possible.

38. The Applicant argues,

"Regardless that Claim 14 depends from Claim 1 which should be patentable over the cited prior art, Claim 14 is further patentable over the process disclosed in Girotti at least for the reason that in step a) of Claim 14, the zeolite Y is used in acidic form whereas the process of Girotti is one which uses a beta zeolite in a basic form".

The Applicant's argument is not persuasive because Girotti discloses, "According to a preferred aspect, the beta zeolite of the catalytic composition of the present invention is in acid form, i.e., in the form in which most of the cationic sites are occupied by hydrogen ions" (Page 4, lines 39-40).

39. The Applicant argues,

"Present Claim 14 recites a particular mixing rate using a high speed mixer at between 900 and 1100 rpm for not less than 50 minutes. In contrast, Girotti does not disclose that the mixing conditions are critical for obtaining an acceptable product.

The Applicant's argument is not persuasive because although Girotti does not specifically disclose the details of mechanical mixing, but does disclose mixing by stirring until complete dissolution (See page 7, lines 35-37). Thus, it would have been obvious to one skilled in the art to use a mixer running at a speed in a range, including as claimed, for an effective mixing of components.

40. The Applicant argues,

"Further still, Girotti does not disclose that particular drying temperatures can have a substantially affect on the properties of the formed catalyst composition. Present Claim 14 provides explicit drying conditions; namely, air calcination including temperatures "not lower than 550°C and not higher than 600°C for a time of not less than 30 hours".

The Applicant's argument is not persuasive because Girotti discloses, "Calcination step is carried out in air at a temperature ranging from 400 to 600°C (Page 13, lines 35-36). Although Girotti does not specifically disclose drying time and calcinations time, it would have been obvious to one skilled in the art at the time the invention was made to use an optimum time in a range, including as claimed, for proper drying and calcination.

Conclusion

41. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prem C. Singh whose telephone number is 571-272-6381. The examiner can normally be reached on 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PS 052608

/Glenn A Caldarola/
Acting SPE of Art Unit 1797

